

REMARKS / DISCUSSION OF ISSUES

Claims 1 – 3, 5 – 11, 13, 14 and 16 – 24 are pending in the application.
Claims 1, 3, 10, 16 and 23 are independent.

In the present amendment, claims 2, 3, 5 – 8, 10 and 14 are amended. No new matter is added.

Claims 2, 5 – 8 and 10 are objected to because of a number of informalities. In the present amendment, claims 2, 5 – 8 and 10 are amended to obviate this objection. No new matter is added. Withdrawal of the objection to claims 2, 5 – 8 and 10 is respectfully requested.

35 U.S.C. 112

Under 35 U.S.C. 112, second paragraph, the Office Action rejects claims 3 and 8, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the present amendment, claims 3 and 8 are amended to obviate this rejection. No new matter is added. Withdrawal of the rejection to claims 3 and 8 under 35 U.S.C. 112, second paragraph, is respectfully requested.

35 U.S.C. 103

Under 35 U.S.C. 103(a), the Office Action rejects claims 1 – 3, 5 – 11, 13, 14 and 16 – 24 over Masse et al. (US 6,990,570), hereinafter Masse, in view of Redford (US 6,732,253).

Applicants submit that for at least the following reasons, claims 1 – 3, 5 – 11, 13, 14 and 16 – 24 are patentable over Masse and Redford, either singly or in combination.

For example, claim 1, in part, requires:

“a plurality of functional units wherein each functional unit is adapted to execute operations,” and

“a plurality of control units responsive to the decode unit.”

In the Office Action, page 5, the Office conceded that Masse fails to teach a plurality of functional units and a plurality of control units. Because of the defects present in Masse, the Office cited Redford and alleged that Redford discloses the above claimed features. Applicants respectfully disagree.

Although Redford discloses a plurality of parallel datapaths for executing a single instruction, Redford does not disclose a plurality of control units. In the Office Action, page 13, the Office argued that an SIMD instruction inherently has a plurality of execution units. However, it does not imply or suggest that each execution unit has its own control unit. Applicants submit that, as clearly shown in Fig. 1, Redford only discloses a single control logic 14, which sends the instruction to the datapaths 18 (column 3, lines 11 – 16). Furthermore, Redford (Figs. 2 and 4, column 3, lines 44 – 56 and column 4, lines 38 – 52) discloses how the data items are assigned to the datapaths in each loop pass, and how to enable or disable each datapath. To perform such assignment and enabling, it requires overall centralized information that includes an allocation between the data items and a memory, a total number of parallel loop passes in a loop processing operation being performed by the datapaths, a size of the array, and a number of datapaths (Redford, column 1, lines 60 – 67). Thus, it clearly suggests that the multiple datapaths are controlled by a single control logic unit, not by a plurality of control units. Therefore, Redford fails to disclose “a plurality of control units responsive to the decode unit,” as claimed.

In view of at least the foregoing, Applicants submit that claim 1 is patentable over Masse and Redford, either singly or in combination.

Similarly, independent claim 3, in part, requires:

“a plurality of functional units wherein each functional unit is adapted to execute operations, and respective private control means for each functional unit for controlling the functional unit in coordination with one another.”

Independent claim 10, in part, likewise requires:

“a plurality of private control units wherein each private control unit is operatively associated with a respective functional unit so that each functional unit is able to execute operations in an autonomous manner under control of the private control unit associated therewith.”

Moreover, independent claim 16, in part, requires:

“a plurality of functional units, each functional unit including a local control unit and an execution element.”

In addition, independent claim 23, in part, also requires

“a plurality of functional units, each functional unit including a local control unit and an execution element.”

Applicants essentially repeat the above arguments for claim 1 and apply them to claims 3, 10, 16 and 23, pointing out why Masse and Redford fail to disclose a plurality of functional units and a plurality of control units. Therefore, claims 3, 10, 16 and 23 are patentable over Masse and Redford.

Claims 2, 5 – 9, 11, 13, 14, 17 – 22 and 24 respectively depend from claims 1, 16 and 23, and inherit all the respective features of claims 1 and 16. Thus claims 2, 5 – 9, 11, 13, 14, 17 – 22 and 24 are patentable for at least the reason that they respectively depend from claims 1, 16 and 23, with each claim containing further distinguishing features.

Withdrawal of the rejection of claims 1 – 3, 5 – 11, 13, 14 and 16 – 24 under 35 U.S.C. 103(a) is respectfully requested.

Conclusion

In view of the foregoing, Applicant respectfully requests that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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